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WORKING PAPER

Overview of Fisheries, Aquaculture and Development

Since 1970, aquaculture (fish farming) has been the world's fastest-growing food production sector. Meanwhile, landings from the world's wild fish stocks (capture fisheries), which grew rapidly through the 1970s and 80s, have since reached a plateau, with half of all fish stocks now being exploited to full capacity, while a quarter are over-exploited and producing diminishing returns [1]. At first glance, then, the broad approach to development-related investment in the fisheries sector seems obvious: for aquaculture, – invest in technologies that will lead to further productivity increases, coupled, if necessary, with support for marketing, for encouraging environmentally responsible development, and for promoting equitable outcomes; for fisheries – improve governance to reduce over-harvesting and to allow the regeneration of depleted fish stocks.

This simple picture fails, however, to represent the diversity of enterprises that make up the fishery sector and its linkages to the wider economy, and the diversity of threats faced by the sector in different places. Any investment strategy predicated on a simple, reductive view of the fishery and aquaculture sub-sectors is therefore likely to result in disappointing returns at best, and, at worst, in exacerbation of existing inter- and intra-sectoral conflicts, environmental degradation and further social marginalization of poor and vulnerable people who depend wholly or partly on fishing and related occupations. Our central theme in this course is therefore to provide insights into fisheries and aquaculture that serve to guide investors and policy-makers beyond blue-printed solutions, towards investment and policy support based on situation-specific diagnosis of threats to fishery sustainability, and towards opportunities for fisheries and aquaculture development. We begin by outlining the kinds of contributions that fisheries and aquaculture make to poverty reduction.

[1] FAO. 2007. The State of Fisheries and Aquaculture. United Nations Food and Agriculture Organization, Rome.

1. FISHERIES AND AQUACULTURE: THEIR CONTRIBUTION TO POVERTY REDUCTION AND NUTRITIONAL SECURITY

Globally, aquaculture has expanded at an average annual rate of 8.9% since 1970, making it the fastest growing food production sector. Today, aquaculture provides around half of the fish for human consumption, and must continue to grow because limited and declining capture fisheries will be unable to meet demands from a growing population. Based on current per-capita consumption targets and population growth trends, aquaculture is recognized by many as the only means of satisfying the world's growing demand for aquatic food products. Directly and indirectly aquaculture could contribute to the livelihoods and nutrition of many millions of people, acting as an engine for economic growth and a diversification strategy in the face of environmental change.

Fisheries and aquaculture contribute to meeting the Millennium Development Goals through employment, provision of nutritious food, generation of revenues for local and national government from licences and taxation on landings, from export revenues, and from various upstream and downstream multipliers [2]. For example, fisheries and aquaculture employ over 50 million people worldwide, a quarter of them in aquaculture, and 98% of these people are from developing countries. In a global export business worth nearly US$ 80 billion annually, African export earnings from fishery products and services are calculated to be over US$ 2.7 billion per year, and fisheries sectors in countries such as Namibia, Uganda, Ghana and Senegal contribute over 6% to their national GDPs [3]. Often, fish landing sites are centres of the cash economy in otherwise remote areas; they stimulate the kind of monetisation of the rural economy that is promoted, for example, in the 2008 World Development Report as a key means to reduce rural poverty and generate economic growth in agrarian states. In small island states and fishery dependent regions of larger economies, this sector is a significant contributor to the overall economy and society. However, because such benefits are often over-looked and undervalued, fisheries are sometimes absent from poverty reduction strategies [4].

Fish contributes indirectly to household and local food security through cash generated from fish sales that is then used to purchase staple foods, and through its wider contribution to local economies. Nutritionally, fish forms at least 50% of the essential animal protein and mineral intake for 400 million people from the poorest African and South Asian countries. Although the contribution to protein is usually emphasised, the most important role of fish in the diet of the poor is providing micronutrients and essential fatty acids that promote maternal health, child development and resilience to infectious diseases. For example, efficacy of anti-retroviral therapies for AIDS treatment is increased by inclusion of fish in the diet.

[2] Béné, C., G. Macfadayen and E.H. Allison. 2007. Increasing the contribution of small-scale fisheries to poverty alleviation and food security. Fisheries Technical Papers 481. FAO, Rome, 141 pp.
Heck, S., C. Béné and F. Reyes. 2007. Investing in African Fisheries: Building links to the Millennium Development Goals. Fish & Fisheries 8(3): 211-226.

[3] FAO. 2007. (ibid.)

[4] Thorpe, A., N.L. Andrew and E.H. Allison. 2007. Fisheries and poverty reduction. CAB Reviews: Perspectives in Agriculture, Veterinary Science, Nutrition and Natural Resources 2007, 2, No. 085.

2. FITTING POLICIES TO MULTIPLE ROLES OF FISHERIES AND AQUACULTURE IN DEVELOPMENT

The course will emphasize the development contributions of small-scale fisheries and aquaculture. It is these activities that supply the largest share of fish used for human consumption, and employ the vast majority of the world's fish-workers. By focusing in this way the course moves beyond the large scale industrial fisheries that have dominated international debates of fisheries policy in earlier years. This shift in emphasis reflects the policy evolution that began twelve years ago with the launch of the FAO Code of Conduct for Responsible Fisheries [5]. This voluntary standard guides the formulation of fisheries policy and legislation in all FAO member states, and its implementation is centred on increasing the contribution of small-scale fisheries to poverty alleviation and food security [6].

In this evolving policy context there continue to be vigorous debates on how to reduce poverty by improving fisheries and aquaculture. These debates are framed by the relative emphases that different national governments and their development partners place on elements of macro-level policy, such as market liberalization, environmental sustainability, economic growth, distributional and equity issues, political decentralization and social development. These differing policy priorities are played out, for example, in the varying degree of emphasis placed on the role of wealth creation and social protection in key fisheries policy documents. There is for example growing support for increasing the contribution of fisheries to poverty reduction through wealth creation, an approach that emphasizes sectoral economic efficiency goals and the role of property rights reform in maximizing the value of fishery resource rents [7,8]. Other recent policy documents on small-scale fisheries place emphasis on recognizing the various roles played by small-scale fisheries, which range from 'engine of growth' to 'safety net', depending on the context. These policy documents recommend targeted support for social development and governance reform to enable them to continue to maintain these diverse functions. We contend that these perspectives – creating wealth by increasing economic efficiency of exploitation, and reducing vulnerability by maintaining access to resources by the poor and vulnerable – are both valid, but each is applicable or optimal in a restricted set of circumstances, which must be identified in advance of attempting to implement one or other approach. During the course we will examine how to make this distinction and pursue the most appropriate investments for each situation.

In aquaculture, similar debates take place between the allocation of resources, and emphasis of policy is either on support to small-scale producers ('pro-poor aquaculture') or larger-scale production which aims to address poverty reduction objectives through commercial aquaculture's contributions to growth, employment and multiplier effects. While commercial, export-orientated shrimp farms have made important contributions to export revenues in several Asian and Latin American countries (and are growing in importance in some African countries), their positive contributions to wealth creation may sometimes be undermined by their negative environmental effects and potential to displace and marginalize those who use the coastal commons where these private enterprises are situated. On the other hand, pro-poor pond aquaculture in South and South-east Asia, whether communal or small-farm based, may not lead to sufficient gains in income to enable participants to escape rural poverty traps.

[5] FAO. 1995. FAO Code of Conduct for Responsible Fisheries, United Nations Food and Agriculture Organization, Rome.

[6] FAO. 2005. Increasing the contribution of small-scale fisheries to poverty alleviation and food security. Technical Guidelines for the Implementation of the CCRF 10. FAO, Rome.

[7] World Bank. 2004. Saving Fish and Fishers. Washington D.C.

[8] DFID. 2004. Fiscal Reform in Fisheries. http://www.keysheets.org/fisheries

3. KEY THEMES IN FISHERIES AND AQUACULTURE DEVELOPMENT

This course aims to illuminate the above debates with current experience and recent thinking drawn from both our own work, and that of our development partners in national, inter-governmental, non-governmental, civil society and research organizations. Within this broad consideration of the direction of fisheries and aquaculture policy for poverty reduction, we highlight six issues that we believe are sufficiently cross-sectoral to deserve consideration by those working in macro-economic planning, social development and rural and peri-urban development outside the fishery sector:

- Management of small-scale fisheries. The vast majority of the worlds' fisherfolk work in what is termed the small-scale or artisanal sub-sector, in developing countries, yet the management of these fisheries is founded on approaches developed largely for managing large-scale fisheries in developed countries. We introduce an evolving set of diagnostic tools for assessing the threats and opportunities for building resilience of small-scale fisheries, enabling them to fulfill their multiple roles in poverty reduction and contributions to food security. Our central aim is to reframe fisheries management as a social and economic development issue, as well as resource management problem.

- Inter-sectoral issues. Situating fisheries in the context of water resource and coastal governance helps to ensure that their actual or potential contributions are incorporated in cross-sectoral planning processes such as integrated river basin management and integrated coastal zone management. Integrate broader human rights of fishers to an adequate livelihood as part of an expanded rights-based approach to fisheries management. This means including poverty-reduction criteria as a key component of decisions over equitable allocation of rights, including decisions over inclusion and exclusion, and the protection of small-scale fishworkers' access to resources and markets. It also means addressing deficiencies in fishing people's rights of equitable access to health care, education, justice and the rule of law.

- Social development and fisheries. Recent research suggests that while fisheries and aquaculture sectors provide important contributions to economic development, those people who are ultimately generating these benefits receive little by return in the form of social services and other forms of state support. Although social development indicators are seldom available for fishing-dependent populations, research indicates that these communities are disadvantaged compared to other rural and peri-urban communities with respect to access to health, education, political representation, and justice. This social exclusion of fisherfolk increases their vulnerability which, in turn, reduces their ability and incentives to participate in governing fisheries for sustainability, thereby undermining the actual and potential contributions of fisheries to wider poverty reduction.

- Aquaculture development. Aquaculture for development can take many forms, ranging from intensive, export-orientated farming of high-value species, to stocking of seasonal floodplain ponds with low-value wild-caught young fish and harvesting them for local sale or own consumption. In between are an array of technologies, markets and production systems that support this dynamic and fast-growing food production sector. We consider the investment and policy needs for sustainable, equitable aquaculture development.

- Trade and fisheries. Fish is now one of the world's most widely traded commodity groups (an estimated 56% of fish is traded across international boundaries). Within the general context of a policy environment encouraging market liberalization and integration of small-scale producers with global markets, fisheries and aquaculture trade is a success story. However, for the benefits of international trade to contribute most to poverty reduction, attention is required to improving the terms of engagement between small-scale producers and larger-scale traders and buyers and to strengthen the governance of resources and environment so that increased exchange values does not lead to accelerated resource depletion and environmental degradation.

- Climate change adaptation and fisheries. Both fisheries and aquaculture production systems are exposed to a wide range of climate-induced risks and stresses. Adapting to the risks of future climate change requires both building on fishery systems' existing adaptive strategies – such as flexible livelihoods and institutions – and developing adaptation plans. Underpinning these responses should be a recognition that any activity that serves to rebuild fish stocks and to reduce fish workers' poverty and social exclusion will also build capacity to adapt to climate change; a rare win-win-win situation.

4. KEY THREATS TO THE CONTRIBUTIONS OF FISHERIES AND AQUACULTURE TO POVERTY REDUCTION

The contributions that fisheries make to poverty reduction are threatened by forces and processes occurring both within and outside the sector. The potential list of threats is as long as the list of different fisheries, but can be grouped under four main areas:

- Demand and scarcity. Demand exceeds supply-capacity of natural ecosystems in many fisheries, leading to unsustainable levels of harvesting pressure on wild resources (but perhaps inducing innovation in aquaculture). Over-capacity in fisheries may be subsidised by states in an attempt to maintain domestic employment or international competitiveness of the national fishing fleet. Such subsidies can mask signals of resource scarcity from falling catch rates.

- Resource access and competition. Access and ownership regimes for fisheries are often unsuitable or poorly defined, leading to a 'race for fish', and to over-capacity of the fishing fleet, and consequent resource decline and economic wastage. Inadequate financing and capacity to enforce states' environmental, water resource, fishery and ocean laws and plans also allow circumvention of management aimed at sustaining stocks and the habitats that support them.

- Governance failures. Fisheries may be overexploited because inadequate or incorrect scientific advice on sustainable harvesting levels is coupled to a management system that is over-reliant on that advice. The governance system has generally failed to manage the consequences of rapid technological and political change, leading to an 'arms race' between regulator and regulated. Lack of resource-user involvement in management and policy making also sets up oppositional or conflictual relationships where there should be a common interest in maintaining the ability of the resources to generate revenues. Poverty, vulnerability and social exclusion of fishing people reduces their capacity and motivation to participate in resource governance. Management and development plans in fisheries also fail to adequately account for natural (climate-induced) variability in resource productivity and confront practical regulatory difficulties in dealing with the mobility and transboundary nature of fish stocks – fish move (rather invisibly) through governed spaces.

- Lack of cross sectoral policy integration. Fisheries advisory services often pay insufficient consideration to social, economic and political dimensions of fishery systems. Fisheries take place in highly contested environments and come under intense pressure from other water and land uses in coastal zones and inland watersheds. And they are often undervalued or not taken into account in water resource, agricultural and coastal zone policy and planning. Furthermore, value of marine ecosystem services is not taken into account in the prevalent management approaches, which consider only direct-use values from consumptive resource exploitation.

5. SEIZING OPPORTUNITIES AND TACKLING THREATS: KEY PRINCIPLES FOR INVESTMENT

This short introduction to the importance of fisheries and aquaculture highlights the diversity of the benefits and the range of threats they face. While these are dealt with in more detail in other briefs dealing with specific issues within the sector, this introductory analysis highlights four key areas for investment that can be pursued broadly across the sector.

i. Avoid policy blue-prints in programmes to strengthen fishery governance. The diversity of both the capture fisheries and aquaculture sub-sectors precludes the application of a blue-print approach to fisheries and aquaculture development. Just as agriculture has its marginal and high potential zones, its cash- and subsistence-crop orientations, and its commercial and small-holder farmers, each requiring different kinds of development assistance and policy response, so, too, do fisheries and aquaculture. Neither 'pro-poor' nor 'wealth-creation' approaches are likely to be universally applicable or effective. What is universally agreed is that the sector requires more effective governance if it is to sustain or enhance its contributions to meeting the Millennium Development Goals. For most countries investments that support development of more effective governance will therefore be a key entry point to the sector.

ii. Support policies for small-scale fisheries and aquaculture that provide incentives for sustainable contributions to poverty reduction. This includes enabling access to basic social and financial services, strengthening exclusionary resource rights, building capabilities to engage in technical innovation in aquaculture, enabling access to global markets and participation in community-based or stakeholder-based resource management, and supporting community-level institutions for resource management and development. With the majority of fisheries being small-scale, and this sub-sector persisting despite consistent attempts to scale-up production and centralize marketing, there is a need to recognize that small-scale producers and traders can be economically efficient and socially and environmentally responsible.

iii. Factor the potential benefits of fisheries and aquaculture into water resource management and coastal zone economic planning. Although emphasis has been placed on addressing the drivers of over-harvesting and technological and sector-based institutional constraints to aquaculture development, in many cases external drivers, such as competing uses for water resources and coastal zones, have the biggest impact on the potential economic contributions from fisheries and aquaculture.

iv. Promote inclusion of fisheries and aquaculture into national or sub-national economic planning processes as appropriate. With Poverty Reduction Strategy Papers guiding economic planning and investment in the Highly Indebted Poor Countries, inclusion of the fisheries sector in the PRSPs and their associated medium-term expenditure frameworks is an important step in gaining recognition for investment needs in the sector. Other related policy vehicles include national food security and nutrition strategies. Investments that support analysis of the contributions that fisheries and aquaculture can make to PRSPs and related policy frameworks will play a major role in supporting the sector. These need to be based on an analysis of the role it plays – both actually and potentially – in revenue generation, employment and nutritional security.

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